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CLAIMS

1. A fuel cell battery, comprising a series of elementary cells (16) pressed against each other by compressive means (34; 38), each of these cells having a central structure (36) formed of a membrane and of two electrodes positioned either side of this membrane and an outer separating structure (42, 44), either side of the central structure, the cells being pressed with their separating structures in contact with each other, so that these two adjacent cells can be detached from each other by deactivating the compressive means (34; 38), and means (55, 62, 64, 66) for introducing and evacuating fluids extending along the cells and that can be connected individually to the latter.

2. The fuel cell battery as claimed in claim 1, characterized in that each of the introducing and evacuating means includes an extensible fluid distribution assembly (6; 7).

3. The fuel cell battery as claimed in claim 2, characterized in that the means for introducing and evacuating fluid (6, 7) comprise at least two fluid distribution elements (6_1 , 6_2 , 6_3), positioned one behind the other in the direction of flow of each fluid, these elements being connected mutually by at least one intermediate connection (56), capable of sliding in relation to the distribution elements that it connects.

4. The fuel cell battery as claimed in claim 3, characterized in that the or each fluid distribution assembly (6, 7) is made of an electrically insulating material.

5. The fuel cell battery as claimed in one of claims 3 and 4, characterized in that the or each fluid

distribution assembly (6, 7) is made of a moldable material.

5 6. The fuel cell battery as claimed in one of the preceding claims, characterized in that each cell (16) is connected to these different introducing and evacuating means (55, 62, 64, 66) by corresponding joining devices (70₁ to 70₄).

10 7. The fuel cell battery as claimed in claim 6, characterized in that each joining device is hollow and communicates with a passage (68₁, 68₂, 69₁, 69₂) emerging in the corresponding introducing and evacuating means (55, 62, 64, 66).

15 8. The fuel cell battery as claimed in any one of claims 6 or 7, characterized in that each joining device (70) emerges in a corresponding channel (84, 94, 96, 106) intended for the inlet or outlet for said entering or exiting fluids, each channel being provided in the elementary cell (16).

25 9. The fuel cell battery as claimed in one of claims 6 to 8, characterized in that each joining device (70) is mounted in a support (4) of the fuel cell battery, with the possibility of transverse clearance (arrow f) with respect to this support, at least along the longitudinal direction of the battery of cells.

30 10. The fuel cell battery as claimed in claim 9, characterized in that the joining device (70) possesses a holding device (78) against the lower face of this support (4).

35 11. The fuel cell battery as claimed in one of claims 8 to 10, characterized in that it includes at least one device (82) ensuring leakproofness between each joining device (70) and a corresponding channel (84, 94, 96, 106) and resting against a sealing zone (85) bordering

this channel (84).

12. The fuel cell battery as claimed in one of the preceding claims, characterized in that it additionally includes means (18₁, 18₂) for making uniform the
5 compression applied to the cells.

13. The fuel cell battery as claimed in one of the preceding claims, characterized in that the means for putting the cells under compression comprise two end
10 plates (18₁, 18₂), an auxiliary plate (24) provided at a distance from one (18₂) of the end plates, at least one tensioning device (28) sandwiched between this auxiliary plate and the holding plate (18₂) adjacent thereto, as well as connecting means (20) making it
15 possible to connect the auxiliary plate (24) and the holding plate (18₁) that is opposite it.

14. The fuel cell battery as claimed in claim 13, characterized in that the tensioning device is
20 hydraulic or pneumatic, in particular a jack (28).

15. The fuel cell battery as claimed in claim 13 or 14, characterized in that the connecting means comprise at least two bars (20) extending along the cells, each bar
25 passing through the two end plates (18₁, 18₂), and also the auxiliary plate (24).

16. The fuel cell battery as claimed in one of claims 12 to 15, characterized in that it is additionally
30 provided with means (32) for maintaining the compression applied to the elementary cells (16).

17. The fuel cell battery as claimed in claims 15 and 16, characterized in that the means for maintaining
35 compression comprise at least one nut positioned on a corresponding bar (20), this nut being able to be positioned against a holding plate (18₂).

18. An elementary cell (16), or group (116) of

elementary cells, for a fuel cell battery as claimed in one of the preceding claims, comprising at least one central structure (36) formed of a membrane and of two electrodes, positioned either side of this membrane, as well as two separating devices (42, 44; 142, 144) provided at the two ends of the elementary cell (16) or group of cells (116), each separating device being able to rest against another separating device belonging to an adjacent cell.

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19. The cell or group of cells as claimed in claim 18, characterized in that the cell or group of cells is provided with grasping means, in particular a loop (46).

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20. The cell or group of cells as claimed in claim 19, characterized in that the grasping means are fixed onto the two separating devices (42, 44).

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21. The cell or group of cells as claimed in one of claims 18 to 20, characterized in that means (49, 50) are provided for previously positioning the cell or group of cells.

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22. A replacement kit for an elementary cell or a group of elementary cells as claimed in one of claims 18 to 21, characterized in that it comprises a central structure (36R), formed of a membrane and of two electrodes either side of the membrane, as well as a closed packaging (36') in which the central structure is accommodated.

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23. The replacement kit as claimed in claim 22, for a cell or a group of cells as claimed in claim 21, characterized in that orifices (37') are provided in a peripheral seal (37) of the central structure (36), these orifices being able to receive the positioning means (49, 50).

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24. The replacement kit as claimed in claim 22 or 23, characterized in that the packaging contains an inert gas.

5 25. A process for manufacturing the replacement kit as claimed in any one of claims 22 to 24, wherein the central structure (36R) is assembled by hot-pressing, and the packaging (36') is added around this central structure (36).

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26. The manufacturing process as claimed in claim 25, characterized in that, before adding the packaging, a conditioning current is passed through the central structure (36).